

Application No. 10/627,491  
Response to Office Action of December 1, 2004

**AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions, and listings, of claims in the application.

**Listings of Claims:**

1. (Currently Amended) In an aircraft flight management system having a flight management computer that stores a pre-planned lateral route of flight of the aircraft comprising a plurality of successive waypoints to be overflown, a method providing a return-to-path maneuver in the event that the aircraft deviates from the pre-planned route, comprising:

if the aircraft is ~~inside~~ outside a preset boundary of the pre-planned lateral route:

choosing either (i) a first waypoint from the waypoints of the pre-planned lateral route as a new candidate active waypoint if the aircraft is on the TO side of the wayline of the first waypoint or (ii) a second waypoint from the waypoints of the pre-planned lateral route as a new candidate active waypoint, the second waypoint following after the first waypoint, if the aircraft is between the wayline of the first waypoint and the wayline of the second waypoint, and calculating a return-to-path route to overfly the new candidate active waypoint.

2. (Original) The method as set forth in claim 1 further comprising selectably accepting the calculated return-to-path route.

3-5 (Cancelled)

6. (Previously Presented) The method as set forth in claim 1 wherein the new candidate active waypoint is a down-path waypoint that results in a low recapture bank angle.

7. (Previously Presented) The method as set forth in claim 1 further comprising generating a virtual waypoint associated with the new candidate active waypoint.

8. (Previously Presented) The method as set forth in claim 7 wherein the virtual waypoint provides an intercept course the new candidate active waypoint.

9-10 (Cancelled)

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11. (Previously Presented) The flight management system as set forth in claim 20 further comprises a flight management computer comprising a memory for temporarily storing information and the new active waypoint is temporarily stored in the memory until the new active waypoint is selectably accepted

12. (Previously Presented) The flight management system as set forth in claim 20 wherein, upon selecting the new candidate active waypoint the pre-planned route is modified to include the new candidate active waypoint.

13-15 (Cancelled)

16. (Previously Presented) The flight management system as set forth in claim 20 wherein the new candidate active waypoint is a down-path waypoint that results in a low recapture bank angle.

17. (Currently Amended) The flight management system as set forth in claim 20 further comprising generating a virtual waypoint associated with the new candidate active waypoint ~~wherein the new candidate waypoint is a virtual waypoint; further comprising a virtual waypoint associated with the new candidate active waypoint.~~

18. (Previously Presented) The flight management system as set forth in claim 17 wherein the virtual waypoint provides an intercept course to a new candidate active waypoint.

19. (original) The flight management system as set forth in claim 18 wherein the calculated return-to-path route may be selectively accepted.

20. (Currently Amended) An aircraft flight management system comprising:  
a preplanned lateral route of flight of the aircraft comprising a plurality of flight legs connected by waypoints;  
a means for selecting a first waypoint from the waypoints of the preplanned lateral route of flight as a new candidate active waypoint if the aircraft is approaching a first wayline associated with the first waypoint and the aircraft is ~~outside~~ inside a predetermined distance from the pre-planned lateral route;

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a means for selecting a second way point from the waypoints of the preplanned lateral route of flight as the new candidate active waypoint, the second waypoint immediately downpath from the first waypoint, if the aircraft is between the waylines of the first waypoint and the second waypoint and the aircraft is ~~outside~~ inside a predetermined distance from the pre-planned lateral route; and

a means for calculating a return-to-path route that overlies the new candidate active waypoint.

21. Cancelled

22. (Previously Presented) The method of claim 1 further comprising the steps of determining if a return path can be built from the aircraft position to a leg associated with the new candidate active waypoint at an interception of forty five degrees while staying within a capture region is possible; and if the return path is possible, constructing an orientation path.

23. (Previously Presented) The method of claim 8 wherein the virtual waypoint provides a tracking point that lies in the path of an aircraft on a forty five degree intercept path of the new candidate active waypoint.

24. Cancelled

25. (Previously Presented) The flight management system of claim 20 further comprising a means for determining if a return path can be built from the aircraft position to a leg associated with the new candidate active waypoint at an interception of forty five degrees while staying within a capture region is possible; and if the return path is possible, constructing an orientation path.

26. (Previously Presented) The flight management system of claim 18 wherein the virtual waypoint provides a tracking point that lies in the path of an aircraft on a forty five degree intercept path of the new candidate active waypoint.